Claims:

1-43. (cancelled)

44. (new) A device allowing magnetic property interaction, the device comprising:

a layer comprising piezoelectric material, the layer being adapted for transporting a surface acoustic wave having a frequency ν_{SAW}; and

at least one ferromagnetic element having a ferromagnetic resonance frequency ν_{FMR} and being capable of magneto-elastic energy conversion,

wherein the layer comprising piezoelectric material is in contact with the at least one ferromagnetic element and the surface acoustic wave frequency ν_{SAW} is substantially equal to the ferromagnetic resonance frequency ν_{FMR} or an integer multiple of the ferromagnetic resonance frequency ν_{FMR} such that the surface acoustic wave interacts with the at least one ferromagnetic element to influence a magnetization state of the ferromagnetic element.

45. (new) A device according to claim 44, the device furthermore comprising at least one surface acoustic wave generating means for generating the surface acoustic wave having the frequency ν_{SAW}.

46. (new) A device according to claim 44, wherein the frequency ν_{SAW} lies in a range having a width corresponding to a certain fraction of a width of an absorption peak corresponding with the ferromagnetic resonance frequency value ν_{FMR} or an integer

multiple thereof, and which is centered around the ferromagnetic resonance frequency value ν_{FMR} or around an integer multiple thereof, the fraction being 100%.

47. (new) A device according to claim 44, wherein the integer is an even integer number.

48. (new) A device according to claim 45, wherein the ferromagnetic element is furthermore in contact with the surface acoustic wave generating means.

49. (new) A device according to claim 45, wherein the ferromagnetic element is not in direct contact with the surface acoustic wave generating means.

50. (new) A device according to claim 45, wherein the ferromagnetic element is a part of the surface acoustic wave generating means.

51. (new) A device according to claim 45, wherein the surface acoustic wave generating means comprises part of the layer comprising the piezoelectric material.

52. (new) A device according to claim 44, wherein the surface acoustic wave creates an effective magnetic field due to magneto-elastic energy conversion in the ferromagnetic element so as to manipulate a magnetic property of the ferromagnetic element.

53. (new) A device according to claim 44, further comprising a means for generating an additional magnetic field at the ferromagnetic resonance frequency or an integer multiple of the ferromagnetic resonance frequency ν_{FMR}.

54. (new) A device according to claim 52, wherein the magnetic property is the magnetization state of the ferromagnetic element.

55. (new) A device according to claim 44, wherein the ferromagnetic element is a functional or structural part of a magnetic component.

56. (new) A device according to claim 55, wherein the magnetic component is a magnetoresistive device and comprises a spin valve or a tunnel junction.

57. (new) A device according to claim 52, wherein an angle between a direction of an easy axis of the ferromagnetic element and a direction of the effective magnetic field is different from 0°.

58. (new) A device according to claim 45, wherein the surface acoustic wave generating means is at least one Inter Digitated Transducer.

59. (new) A device according to claim 45, wherein the device has a second surface acoustic wave generating means.

60. (new) A device according to claim 59, wherein the surface acoustic wave generating means is generating a shear wave in a first surface acoustic wave propagation direction and the second surface acoustic wave generating means is generating Rayleigh waves in a second surface acoustic wave propagation direction.

61. (new) A device according to claim 60, wherein the first surface acoustic wave propagation direction and the second surface acoustic wave propagation direction are orthogonal to each other.

62. (new) A device according to claim 45, further comprising a surface acoustic wave detection means positioned opposed to the surface acoustic wave generating means with respect to the ferromagnetic element.

63. (new) A device according to claim 45, further comprising a plurality of ferromagnetic elements ordered on top of one of the layer comprising piezoelectric material and the surface acoustic wave generating means.

64. (new) A method for sensing an environmental parameter, the method comprising:

allowing at least one ferromagnetic element to interact with an environment for which an environmental quantity is to be measured;

generating a surface acoustic wave in a layer comprising piezoelectric material, the layer being in contact with the at least one ferromagnetic element, the surface acoustic

wave interacting with the at least one ferromagnetic element as to influence a magnetization of the at least one ferromagnetic element;

dynamically measuring a variation of a characteristic parameter influenced by the ferromagnetic element; and

deriving from the variation of the characteristic parameter a corresponding value of a physical quantity of the ferromagnetic element.

65. (new) A method according to claim 64, wherein the physical quantity of the ferromagnetic element is a magneto resistance of the ferromagnetic element.

66. (new) A method according to claim 64, wherein the deriving from the variation of the characteristic parameter a corresponding value of the physical quantity comprises:

deriving from the dynamic measurement a degree of anisotropy of the at least one ferromagnetic element; and

deriving from the degree of anisotropy a corresponding value of the physical quantity.

67. (new) A method according to claim 64, wherein the variation in the characteristic parameter influenced by the at least one ferromagnetic element is induced by the magnetization or magnetization direction of the ferromagnetic element.

68. (new) A method according to claim 64, further comprising applying an additional magnetic field at the ferromagnetic resonance frequency or an integer multiple of the ferromagnetic resonance frequency ν_{FMR}.

69. (new) A method according to claim 68, wherein the surface acoustic wave has a frequency ν_{SAW} substantially equal to the ferromagnetic resonance frequency ν_{FMR} or an integer multiple of the ferromagnetic resonance frequency $\nu_{FMR.}$

70. (new) A method according to claim 68, wherein the integer multiple is an even integer multiple.

71. (new) A method for creating a magnetic image, comprising

allowing a plurality of ordered ferromagnetic elements to interact with an environment for which an image is to be created;

generating a surface acoustic wave in a layer comprising piezoelectric material, the layer being in contact with the plurality of ordered ferromagnetic elements, the surface acoustic wave interacting with the plurality of ordered ferromagnetic elements as to influence a magnetization thereof;

dynamically measuring, for each of the plurality of ordered ferromagnetic elements a variation of characteristic parameters influenced by the ferromagnetic elements; and

deriving from the variation of the characteristic parameters a corresponding value of a physical quantity for each of the plurality of ordered ferromagnetic elements.

72. (new) A method according to claim 71, wherein the physical quantity for each of the ferromagnetic elements is a magneto resistance of the ferromagnetic elements.

73. (new) A method according to claim 71, wherein the allowing the plurality of ordered ferromagnetic elements to interact with an environment and the generating a surface acoustic wave is performed one time for all ferromagnetic elements in parallel and wherein the dynamically measuring the variation and the deriving a corresponding value is performed on a per ferromagnetic element basis.

74. (new) A method according to claim 71, further comprising applying an additional magnetic field at the ferromagnetic resonance frequency or an integer multiple of the ferromagnetic resonance frequency ν_{FMR}.

75. (new) A method according to claim 74, wherein the surface acoustic wave has a frequency ν_{SAW} substantially equal to the ferromagnetic resonance frequency ν_{FMR} or an integer multiple of the ferromagnetic resonance frequency ν_{FMR}.

76. (new) A method according to claim 74, wherein the integer multiple is an even integer multiple.

77. (new) A method for reading a readout-value from at least one ferromagnetic element, comprising:

generating a surface acoustic wave in a layer comprising piezoelectric material, the layer being in contact with the at least one ferromagnetic element, the generating a

surface acoustic wave being such that a precessional movement of a magnetization in the at least one ferromagnetic element is achieved and such that a corresponding magnetization state of the at least one ferromagnetic element is not switched;

dynamically measuring a variation of a characteristic parameter influenced by the ferromagnetic element; and

deriving from the variation of the characteristic parameter the read-out value.

78. (new) A method according to claim 77, wherein the characteristic parameter influenced by the ferromagnetic element is a magneto resistance of the ferromagnetic element.

79. (new) A method according to claim 77, wherein the deriving from the variation of the characteristic parameter the read-out value comprises:

deriving a phase difference between an input signal applied to a surface acoustic wave generating means and an output signal obtained from the dynamic measurement of the characteristic parameter; and

deriving from the phase difference the read-out value.

80. (new) A method according to claim 77, wherein the read-out value corresponds with a distinct number of specific values.

81. (new) A method according to claim 77, further comprising applying an additional magnetic field at the ferromagnetic resonance frequency or an integer multiple of the ferromagnetic resonance frequency ν_{FMR}.

82. (new) A method according to claim 81, wherein the surface acoustic wave has a frequency ν_{SAW} substantially equal to the ferromagnetic resonance frequency ν_{FMR} or an integer multiple of the ferromagnetic resonance frequency ν_{FMR}.

83. (new) A method according to claim 81, wherein the integer multiple is an even integer multiple.

84. (new) A method for switching at least one ferromagnetic element, comprising:

generating a surface acoustic wave in a layer comprising piezoelectric material, the layer being in contact with the at least one ferromagnetic element, the generating a surface acoustic wave being for achieving a precessional movement of a magnetization in the ferromagnetic element; and

orienting a corresponding magnetization state of the ferromagnetic element.

85. (new) A method according to claim 84, wherein the orienting the magnetization state of the ferromagnetic element is performed by generating a ferromagnetic element specific additional field.

86. (new) A method according to claim 84, wherein the surface acoustic wave is one of a Rayleigh wave with an angle between an easy axis of the ferromagnetic element and a direction of effective field of 90° during a first half period of the Rayleigh wave and a shear wave with the angle between the direction of an easy axis of the

ferromagnetic element and the direction of the effective magnetic field generated greater than 45°.

87. (new) A method according to claim 84, further comprising applying an additional magnetic field at the ferromagnetic resonance frequency or an integer multiple of the ferromagnetic resonance frequency ν_{FMR}.

88. (new) A method according to claim 87, wherein the surface acoustic wave has a frequency ν_{SAW} substantially equal to the ferromagnetic resonance frequency ν_{FMR} or an integer multiple of the ferromagnetic resonance frequency ν_{FMR}.

89. (new) A method according to claim 87, wherein the integer multiple is an even integer multiple.

90. (new) A magnetic resonator comprising:

a layer comprising piezoelectric material, the layer being adapted for transporting a surface acoustic wave having a frequency ν_{SAW};

at least one ferromagnetic element having a ferromagnetic resonance frequency ν_{FMR} and being capable of magneto-elastic energy conversion, wherein the layer comprising piezoelectric material is in contact with the at least one ferromagnetic element and the surface acoustic wave frequency ν_{SAW} is substantially equal to the ferromagnetic resonance frequency ν_{FMR} or an integer multiple of the ferromagnetic resonance frequency ν_{FMR} such that the surface acoustic wave interacts with the at least one ferromagnetic element to influence a magnetization state of the ferromagnetic element; and

a tip composed of a magnetic material and supported by a cantilever-type structure and furthermore being positioned near the at least one ferromagnetic element.

91. (new) A method for active tuning of a working frequency of a surface acoustic wave, the method comprising:

monitoring absorption of a surface acoustic wave by a ferromagnetic element, the surface acoustic wave generated by a surface acoustic wave generating means in a layer comprising piezoelectric material in contact with the ferromagnetic element as to influence a magnetization of the ferromagnetic element;

deriving from the absorption a difference between a working frequency of the surface acoustic wave and a ferromagnetic resonance frequency of the ferromagnetic element; and

tuning the working frequency of the surface acoustic wave generating means towards the ferromagnetic resonance frequency.

92. (new) A method according to claim 91, wherein the tuning of the working frequency of the surface acoustic wave generating means towards the ferromagnetic resonance frequency is tuning the working frequency to a frequency slightly different from the ferromagnetic resonance frequency.

93. (new) A method according to claim 92, wherein the frequency corresponds with the absorption of the surface acoustic wave by the ferromagnetic element within 1% and 99% of the absorption of the surface acoustic wave by the ferromagnetic element at the ferromagnetic resonance frequency.